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**TB CARE II**  
BANGLADESH

# **TB CARE II Bangladesh**

## **Annual Report, 2014**

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**University Research Co., LLC**

**Bethesda, Maryland**

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## LIST OF ACRONYMS

ACSM	Advocacy, Communications, and Social Mobilization
AIDS	Acquired Immune Deficiency Syndrome
BIRDEM	Bangladesh Institute of Research & Rehabilitation for Diabetes, Endocrine and Metabolic Disorders
BADAS	Bangladesh Diabetic Samity
cPMDT	Community based Programmatic Management of MDR TB
CDC	Chest Disease Clinics
CDCS	Country Development Cooperation Strategy
CDR	Case Detection Rate
CHW	Community Health Workers
DAB	Diabetic Association of Bangladesh
DOTS	Directly Observed Treatment Short-course Strategy
DRS	Drug Resistance Survey
DST	Drug Sensitivity Testing
FAST	Finding TB patients, Actively, Separating safely, Treating effectively
FDC	Fixed Dose Combination
FHI	Family Health International
GFATM	Global Fund to Fight AIDS, TB, and Malaria
GHI	Global Health Initiative
GLC	Green Light Committee
GOB	Government of Bangladesh
HIV	Human immunodeficiency virus
IC	Infection Control
MDG	Millennium Development Goals
MDR TB	Multi drug-resistant TB
MOH	Ministry of Health and Family Welfare
NIDCH	National Institute of Diseases of the Chest and Hospital
NRL	National Reference Laboratory
NTP	National Tuberculosis Control Program
PIH	Partners In Health
PMP	Performance Monitoring Plan
PPM	Public Private Mix
QA	Quality Assurance
TB	Tuberculosis
TB CAP	Tuberculosis Control Assistance Program
TSR	Treatment Success Rate
URC	University Research Co., LLC
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization
XDR TB	Extensively drug resistant TB

# 1 EXECUTIVE SUMMARY

This report reflects progress made in the implementation of project activities in FY 2014. During this year, the TB CARE II Bangladesh made significant progress on increasing universal access to TB and MDR TB services. Project assistance has contributed to increasing national case notification, identification and management of childhood TB, expanding national capacity for diagnosis of MDR TB, expansion of community based programmatic management of MDR TB (cPMDT), and strengthening laboratory services and systems.

There has been a substantial increase in the national case notification. The case notification data is available up to 2013 and indicates an increase in national case notification rate of all forms of new and relapse TB case from 109 in 2012 to 120 in 2013 per 100,000 populations (NTP MIS report 2013.) The total case notification has increased by 12% in 2013 compared to the previous year. The increase in notification is mainly driven by smear negative and EP TB cases. The total number of smear negative cases notified increased from 24,451 to 42,394 and EPTB increased from 30,549 to 33,704 between 2012 and 2013.

Currently, the project has been supporting thirteen local NGO sub-grantees to increase detection of management of TB. These NGOs together have contributed to detection and notification of more than 15,000 TB cases of all forms in 2013 and almost equal number of cases in 2014. The first grant project with BRAC implemented in 12 districts has ended in June 2014. Through this grant, the total case detection increased from 30,315 at baseline to 36,153 after end of year 1 and to 40,122 after end of year 2. During these two years, approximately 15,445 additional TB cases of all forms were detected with project support. The second sub-grant with BRAC that started in December 2013 has reported detection of 18,694 cases in 9 months achieving 88% of the target set for year 1. The project sub-grant DAB detected and notified 887 TB cases among the diabetes patients this year. In addition, eleven other sub-grantees together have detected approximately 5,805 additional cases in FY2014.

The project recorded significant progress in enhancing national capacity for diagnosis of MDR TB using GeneXpert. Thirty nine GeneXpert machines are currently operational and being used as the first line test for diagnosis of MTBRIF cases. In FY 2014, project support led to the detection of 9,033 MTB and 971 MTBRIF resistant cases by GeneXpert.

The expansion of hospital capacity for inpatient management of DR TB patients and transfer of patients to cPMDT usually within two months after initiation of treatment have enabled NTP to significantly increase the enrollment of patients in to DR TB treatment. In the first six months of 2014, 469 patients started treatment for MDRTB including 364 enrolled in to the standard 24-month regimen and 105 in to the 9-month regimen. Between October 2013 and September 2014, the project has enrolled 474 patients in to community based continuation phase treatment. The project assistance has also significantly improved early initiation to treatment for MDR-TB patients.

The project through its partnership with the Bangladesh Pediatric Association supported training of pediatricians, doctors, general physicians and health care workers from the upazila level to develop their clinical and programmatic management skills in screening, diagnosis and management of child TB cases. Through this partnership, the project supported TOT and developed 38 medical professionals as trainer-of-trainers for doctors on child TB. During the reporting period, 1,168 doctors including UHFPOs, Medical Officer (Disease Control), pediatricians and general physicians from different upazilas and physicians from public and private medical colleges of Dhaka division have been trained.

The project has been supporting PPM activities through the grants program to engage formal and informal private sector service providers in TB control program. In this year, the project supported orientation of 3,768 graduate doctors and 7,764 non-graduate doctors on identification and referral of presumptive TB cases. The PPM effort contributed to identification and referral of 41,581 presumptive TB cases to the DOTS centers for diagnosis and management.

The project implemented a number of activities to strengthen laboratory capacity and systems. For efficient management of laboratory data, the project supported development of an integrated laboratory data management system which is now installed and operational at NTRL. Training was also provided to 9 microbiologists and Lab Staff from NTRL to develop their skills in data entry, management, and developing customized and need-based reports. Training of lab staff on AFB microscopy, operation and maintenance of GeneXpert, culture and DST, was also supported by the project during this tear.

Currently, mHealth is operational in 33 districts. The mHealth application introduced by the project has become an essential tool for routine monitoring of DOTS for patients, administration of drugs, and treatment adherence by patients. The project organized quarterly workshop to review Xpert lab data to monitor quality and performance of DR TB diagnostics and monitoring services and also organized EQA workshops to review the EQA procedures and developed actions for improvement. The project also organized advocacy workshops on DR TB and utilization of Xpert in 4 divisional headquarters.

## **2 INTRODUCTION**

The TB CARE II Bangladesh project which started in the middle of 2011 supports a range of interventions to enhance national capacity for increasing detection and management of TB and MDR-TB. Improvements have been significant in increasing case notification especially for smear negative and EPTB cases. Introduction and scale up of GeneXpert and community based management of MDR-TB has more than doubled the level of detection and enrollment in to treatment of MDR-TB. A large number of labs have been upgraded with LED microscopes to increase NTP's capacity and quality for smear microscopy services. The project has been supporting a grants program through selected NGOs specifically in underperforming areas for the last three years. This initiative, although limited in scale, has contributed to increasing detection of additional TB cases and community awareness about prevention and early care seeking for TB services. The national TB program is now better positioned to realize its goals and objectives given specialized support to sustaining the interventions initiated by the project in the last four years.

## **3 USAID/BANGLADESH OBJECTIVES FOR THE TB CARE II PROJECT**

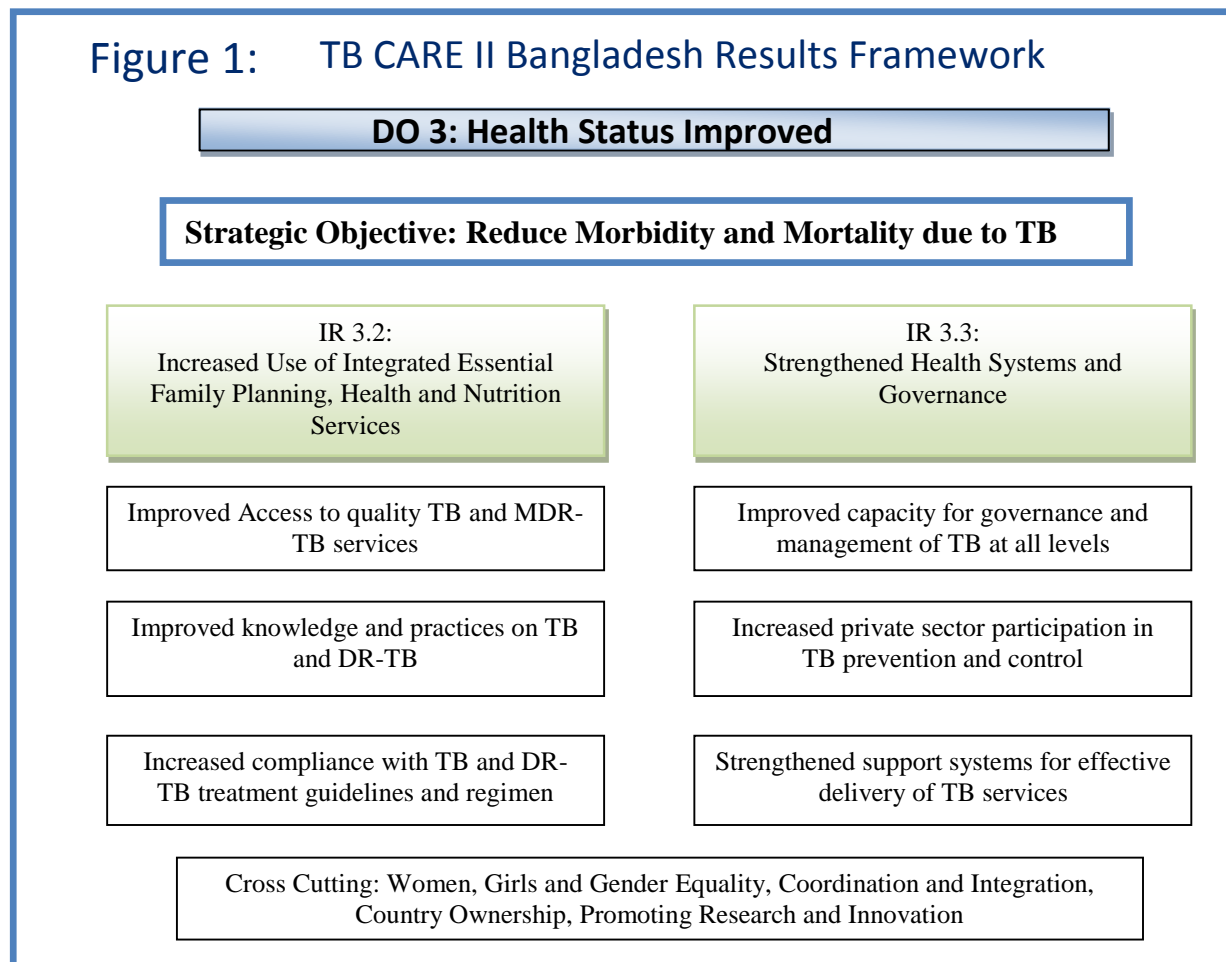
The TB CARE II project has been designed in consultation with USAID/Bangladesh and NTP to contribute to achieving Bangladesh national objectives for preventing and controlling TB and to help GOB achieve its Millennium Development Goals (MDGs) for TB. The specific objectives of the project include the following:

- Improve universal access to TB diagnosis and treatment;
- Work with GOB to reach and sustain the global targets of > 70% case detection and > 85% cure rates under DOTS;
- Providing high quality DOTS through all levels including those of private providers;
- Improve programmatic management of MDR TB and increase access to MDR TB prevention and treatment through community-based approaches
- Strengthening diagnostic capacity for drug susceptible and drug resistant TB
- Health systems strengthening with an Upazila-based approach for decentralized management of TB control and prevention activities.

## **4 USAID/BANGLADESH RESULTS FRAMEWORK**

The goals and objectives of this project are in line with the USAID/Bangladesh GHI Strategy, the USAID/Bangladesh CDCS, the GOB's health sector program, and USAID FORWARD reforms. This project contributes to two Intermediate Results (IRs) of CDCS Development Objective 3: Health Status

Improved. The GHI principles of gender equity, coordination and programmatic integration, encouraging country ownership and investing in country-led plans and health systems, and promoting research and innovation are cross-cutting themes of this project.



The geographic coverage and scope of project support varies by technical areas. Building NTP's capacity for increasing detection and management of MDR-TB is targeted to the whole country except districts covered by Damien Foundation for short-term regimen. The technical and logistics support to increasing access to GeneXpert services targets the whole country. Management of MDR-TB with a community based approach is also a nationwide intervention except districts that are covered by Damien Foundation for short-course regimen. The project assistance to strengthening and expanding capacity and quality of sputum microscopy, culture and DST services targets the whole laboratory network of the country.

The grants program implemented by the project has a limited geographic coverage of selected number of districts and parts of city corporations. The technical scope of the grants program is also limited with focus on complementing programmatic gaps in Global Fund supported community based activities to boost detection of smear negative and EPTB cases.

## 5 MAJOR ACCOMPLISHMENTS FOR 2014

- National case notification of all forms of TB increased from 164,855 to 184,506 and the notification rate from 109 to 120 between 2012 and 2013;

- Detection of all forms of TB through the grants program increased approximately by 15,500 cases in 2014 compared to baseline;
- Detected a total of 971 RIF Resistant cases by testing 8,291 DR TB presumptive cases and 24,653 smear negative presumptive cases and 265 HIV+ patients in FY14;
- Tested 24,653 smear negative presumptive cases by GeneXpert and diagnosed 3,541 MTB positive including 233 MTB/RIF resistant cases;
- Screened 265 HIV patients for TB by GeneXpert and diagnosed 14 MTB positive including 2 MTB/RIF resistant cases;
- In the first 6 months of 2014, 492 patients were diagnosed with MDR-TB (RIF Resistant) and 469 of them were initiated to treatment;
- Conducted basic and refresher training on cPMDT for 1,916 Outpatient DR TB team members from Upazila Health Complexes;
- Completed installation of 12 Xpert machines and calibrated 17 Xperts by certified engineers;
- Trained 61 lab technicians on the operation and maintenance of GeneXpert;
- Organized advocacy workshops on DR TB and utilization of Xpert in 4 divisions to increase referral of DR TB suspects for Xpert testing;
- Organized training for 134 lab staff on AFB sputum smear microscopy using LED microscope;
- Conducted training for 194 TLCA and Medical technologist (Lab) on sputum collection and transportation mechanism;
- Conducted training and refresher training for 27 Microbiologists, Medical technologist (Lab), designated Laboratory Technicians on “Biological Safety cabinets, Laboratory Equipment Maintenance & Calibration” by an external facilitator from Alliance Bioscience, USA;
- Conducted training on culture and DST for 7 lab staff from RTRLs;
- Developed and installed an integrated computerized laboratory data management system at NTRL and trained 9 lab staff on management of the system;
- Conducted orientation on mHealth application for 1,137 NTP and NGO staff including 340 DOT providers from upazilas and districts;
- Provided orientation on waste management for 1,062 health professionals from NTP and NGOs;
- Conducted training for 52 clinicians on Radiological Interpretation of Evidences of TB in Children;
- Conducted orientation for 367 physicians including pediatricians from 9 medical college hospitals on the national child TB management guidelines;
- Supported training of 1,168 physicians on diagnosis and management of childhood TB and 8,345 health care workers on screening and referral of presumptive child TB cases;
- Conducted training and orientation for 231 NTP staff on updated recording & reporting forms of TB for data collection and reporting and analysis of data for performance improvement;
- Inaugurated MDR TB ward at Sylhet Chest Disease Hospital for enrollment of DR TB patients;
- Installed 78 solar panels in selected microscopy centers to ensure uninterrupted operation of labs to provide microscopy services;
- Completed renovation of MDR TB ward at Sylhet, Barisal and one XDR TB ward at NIDCH;
- Conducted training for 10 CDH staff from CDH Barisal on management of MDR TB patient to support enrollment of MDR TB patients;
- Conducted counseling training for 45 CDH nurses at CDH, Chittagong for providing services to MDR TB patients;

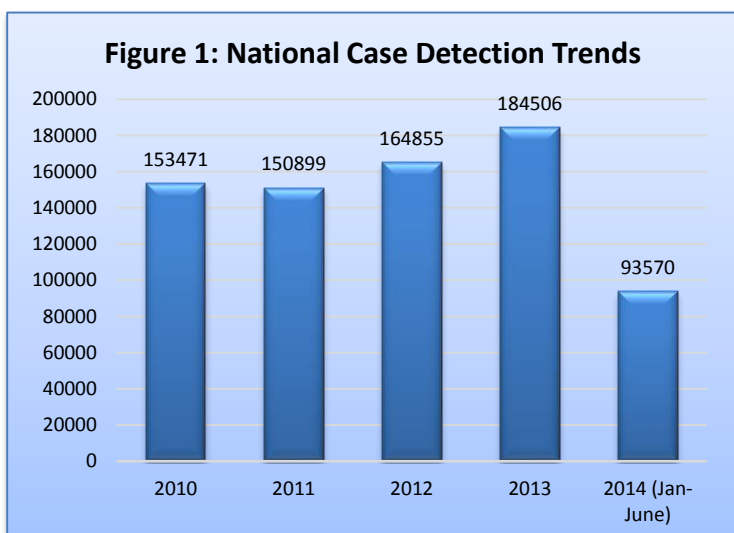
- Conducted orientation on FAST at BIRDEM and NIDCH and CDH Chittagong for a total of 332 participants including physicians and nurses;
- Developed teaching videos to supplement child TB training modules;

## 6 ACCOMPLISHMENTS BY RESULTS

### 6.1 Improved Access to quality TB and MDR-TB Services

#### 6.1.1 Case Notification at the National Level

The case notification data for the full year is available up to 2013 and indicates an increase in national case notification rate of all forms of new and relapse TB case from 109 in 2012 to 120 in 2013 per 100,000 populations (NTP MIS report 2013.) The total case notification has increased by 12% in 2013 compared to



the previous year. **Figure 1** shows the national case detection trends since 2010 up to the first two quarters of 2014 calendar year.

The notification of smear positive cases has remained similar to previous years. The increase in notification is mainly driven by smear negative and EPTB cases. The total number of smear negative cases notified increased from 24,451 to 42,394 and EPTB increased from 30,549 to 33,704 between 2012 and 2013. It is clear from the NGO performance analysis presented above that the project's strategic focus and support through the sub-grants has made a significant contribution to increasing national case

notification especially for smear negative and EPTB. The overall case detection continued to increase in the first two quarters of 2014 calendar year and is likely to exceed the 2013 level provided support to the NGOs is sustained.

The notification of child TB cases has slightly increased in absolute numbers to 5,045 in 2013 from 4,842 in 2012. Enhanced strategic focus and direction at the national level, capacity building of service providers at different levels, strong community based active case finding, e.g., contact tracing, and an effective referral network for diagnosis are needed to see any tangible changes in child TB notification.

#### 6.1.2 Case Detection by Project Sub-grantees

Currently, the project has been supporting 13 different sub-grants with local NGOs to implement community based TB control activities particularly in underperforming districts and targeted to populations living in urban slums and inaccessible rural areas. The results achieved through the sub-grant program are discussed below.

##### ■ BRAC Sub-Grants

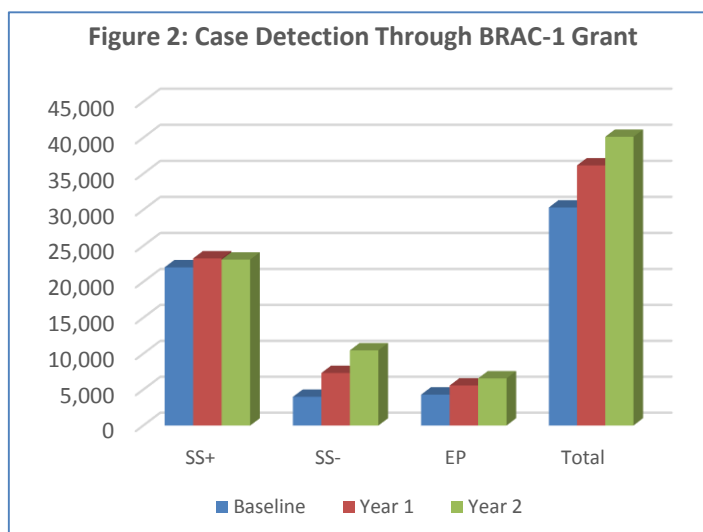
The largest sub-grant through BRAC targeted 12 districts with a population of 29 million. The project aim was to complement the Global Fund supported activities in these district to further increase detection of all forms of TB with greater focus on increased detection of smear negative TB and EPTB cases. This grant started in April 2012 and ended in July 2014. The total case detection increased from 30,315 at baseline to 36,153 in year 1 and 40,122 in year 2. During these two years, approximately 15,445 additional TB cases

of all forms were detected with project support. The **Figure 2** shows the changes in case detection with project support.

Detection of smear positive cases, a focus of the existing GF grant, was already high and has seen only a modest increase. The most prominent increase was in the detection of smear negative cases which increased by 83% and 162% in year 1 and 2 respectively compared to baseline. The detection of EPTB has also increase significantly by 29% and 52% respectively during the same periods with project support.

The project has also awarded a second sub-grant through BRAC with similar objectives, which started in December 2013 and expands coverage to 10 new districts with a population of 20.5 million.

**Table 1** presents performance achieved through this sub-grant with project support. The total number of presumptive TB cases identified during this period are 174,931 which led to the detection of 18,694 TB cases of all forms. The sub-grant demonstrated strong performance and was able to rapidly start up, allowing them to achieve the total case detection target set for year 1 in only 9 months. The baseline represents the case detection with Global Fund support. The project focuses on contact tracing of household contacts and screened at total of 28,524 close contacts of TB patients, of which 4,250 presumptive TB cases were identified and 177 TB cases were detected.



**Table 1: Case Detection through BRAC-2 Sub-grant**

Category	Baseline	2014 Target	Total Q1 and Q3	% Result of Target
Smear Positive	14,754	15,455	11,482	74%
Smear Negative	1,769	2,686	4,951	184%
EP TB	2,116	3,213	2,261	70%
Child TB	341	615	353	57%

The increase in detection of smear negative and EPTB cases is a direct result of the project's strategic focus to remove the barriers that prevent access to specialized services by underprivileged people with TB symptoms. The project provided financial support to poor patients to reimburse diagnostic and transportation costs incurred for detection of smear negative and EPTB cases. During the reporting period, 2,788 smear negative and 688 EP TB patients received this financial support. The project also supported BRAC to provide TB services in 12 prisons. This effort contributed to testing sputum samples of 982 prison inmates and detection of 41 TB cases in nine month period. Treatment has been initiated to all the patients.

## ■ Diabetic Association of Bangladesh (DAB)

The project has been supporting the Diabetic Association of Bangladesh (DAB) to increase access to TB services for diabetic patients through an integrated approach with a focus on active screening of diabetic patients. Compared to baseline, the total case detection of all forms of TB among diabetic patients has increased manifold. DAB project detected 887 TB cases of all forms among the DM patients during the reporting period. Treatment has been initiated to all the diagnosed patients through the DOT centers at the

BIRDEM hospital and other DAB affiliated centers. **Figure 3** shows the case detection trend since beginning of the project in April 2013.

The TB CARE II project provides continuous support to develop human resources within DAB and its affiliated hospitals to integrate TB services for DM patients. In the reporting period, the project assisted DAB to train 530 doctors and nurses from BIRDEM and other affiliated hospitals on diagnoses and management of TB among diabetic patients. The participants also received practical knowledge on DOTS strategy, its applicability and methods of quick screening and referral. In addition, DAB conducted orientation for 154 health workers on TB/diabetes co-morbidities, training for 8 lab technicians on AFB microscopy. The project is also collaborating with DAB to develop a national guideline on management of TB in DM.

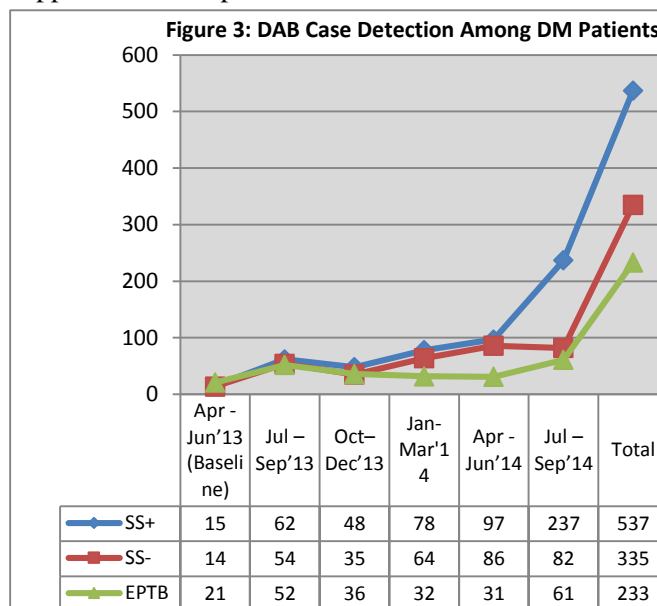
#### ■ Other Sub-Grantees

Apart from BRAC and DAB, the project has been supporting 11 (eleven) other sub-grants awarded to local NGOs to address gaps in the GF supported activities to increase detection and management of TB cases. These NGOs contributed to detection of 5,805 additional TB cases of all forms and initiation to treatment of these patients. The last four sub-grants started in the FY14 quarter 3 are still at the initial stage of implementation and had very little to report on their performances. RDRS, KMSS, VORD and Light House started operations during the last quarter of FY14; VORD and Light House do not yet have data to report.

**Table 2: Case Detection by 11 NGO Sub-Grantees, FY 2014**

NGOs	Smear positive	Smear Negative	EP TB	Total
HEED	879	500	238	1,617
BCCP	409	327	406	1,142
Leprosy Mission	690	117	72	879
Lepra Bangladesh	1,102	79	101	1,282
Nari Maitree	170	61	66	297
FIDA	277	203	17	497
PIME Sisters	39	7	12	58
RDRS	22	7	0	29
KMSS	2	2	0	4
VORD	0	0	0	0
Light House	0	0	0	0
Total	3,590	1,303	912	5,805

#### ■ Detection of Child TB



The project has been supporting contact tracing and other community based screening through the NGO sub-grantees to increase detection of TB and child TB. Technical support has been provided to the NGOs to develop capacity of the NGO staff in planning and conducting contact tracing in the geographic areas in which they work. During this year, the project supported NGOs reported detection of a total of 332 child TB cases through contact tracing and other community based screening activities. The contact tracing has contributed to identification of 1,638 presumptive TB cases and detection of 30 child TB cases. Given the low detection level of child TB, it is deemed necessary to improve quality of child TB screening by NGO field workers and strengthen systematic contact tracing covering all the index TB cases.

### ■ IPT for under 5 Children

Providing IPT to eligible children living in the families of active TB patients is included as part of small grants activities. During this period, the NGO partners evaluated 2,996 children and registered 321 children for IPT. Among the registered children, 78 children have completed the full course of prophylaxis.

### ■ Case Finding by the FAST Approach

Implementation of the FAST approach for screening of presumptive TB cases especially at large hospitals is part of project's strategy for active case finding. With technical support from PIH, the project has expanded this approach to all the TB and non-TB wards of NIDCH. The project also scaled up this approach at BIRDEM and CDH Chittagong. This initiative has contributed to testing of 4,468 current TB and other lung disease patients including those who had TB in the past. This initiative helped detection of 481 TB cases including 61 RIF resistant cases in this year.

*Table 3: Case Detection by FAST*

Disease Category	Tested	TB Detected	Rif Res Detected	% of TB Detected	% of Rif Res Detected
Current TB Patients	506		22		4.35
Other lung disease	3223	319	27	9.90	0.84
Lung disease with previous TB	739	166	12	22.46	1.62
Total	4468	485	61	10.85	1.37

### ■ Detection of Smear Negative TB

The detection of smear negative TB cases has increased due to testing by GeneXpert. The project has established referral systems to enable the peripheral microscopy labs to refer smear negative cases to the GeneXpert sites for testing. During the reporting period, a total of 24,643 smear negative presumptive TB cases have been tested. This helped in the detection of 3,541 MTB positive including 233 MTB/RIF resistant cases. The proportion of smear negative cases detected is 14% of the total number presumptive cases tested by GeneXpert. **Table 3** shows progress in testing and detection of smear negative TB cases.

*Table 4: Detection of Smear Negative TB by GeneXpert*

Period	Total Tested	MTB	MTB Positive %	MTB/RIF	RIF Positive %
Oct-Dec'13	2,447	344	14	15	.61
Jan-Mar'14	6,827	866	13	57	.83
Apr-Jun'14	7,546	1,137	15	81	1.07
Jul-Sep'14	7,823	1,194	15	80	1.02
Total	24,643	3,541	57	233	0.95

### ■ Extra-Pulmonary TB (EPTB)

The project has been supporting community level screening and awareness building activities to increase detection of EPTB. The project also support diagnostic and transportation costs for the poor people suspected of EPTB. These efforts resulted in increased detection of EPTB cases through all the project sub-grantees. GeneXpert test was performed at NTRL and RTRL, Chittagong for a total of 1,500 samples from presumptive EPTB cases, this helped detection of 372 MTB positive cases including 29 RIF resistant cases.

#### ■ TB screening for HIV patients

NTP has made a policy decision to conduct TB screening for all HIV patients with GeneXpert. To implement this policy, the project collaborates with the existing HIV/AIDS NGOs to facilitate referral of HIV patients for GeneXpert test. During this year, project facilitated testing of 265 HIV positive patients and that resulted in detection of 14 MTB positive including 2 RIF resistant cases.

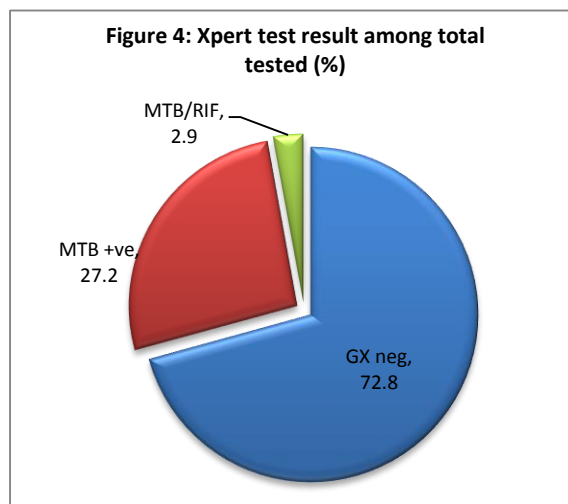
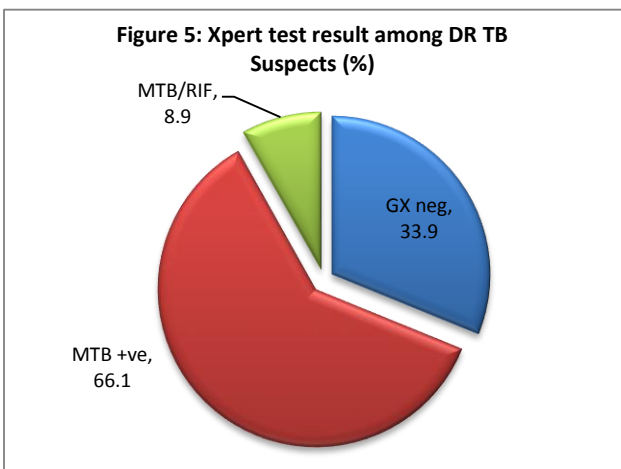
### 6.1.3 Strengthen NTP capacity for detection of MDR TB cases

#### ■ Coverage of GeneXpert Services

The coverage of GeneXpert testing has further expanded with the addition of 12 machines procured and installed this year. Currently, the project has been supporting operation of 39 GeneXpert machines covering 34 districts and all the city corporations of the country. During this year, the project has procured 46,000 cartridges to support diagnosis of MTB RIF as well as MTB among the DR TB and smear negative presumptive cases. The project also coordinated technical support for calibration of GeneXpert machines by certified engineers to ensure that the machines are fully operational and providing uninterrupted services.

#### ■ Detection of MTB and MTB/RIF by GeneXpert

In this reporting period, GeneXpert test was performed



for a total of 33,209 samples including 8,291 presumptive DR-TB cases. This helped detect 971 Rif resistant cases including 736 from among DR-TB and 233 from among smear negative presumptive cases.

Of the total samples tested, 27% were MTB positive including 2.9% was MTB RIF positive. The detection of MTB positive and Rif resistant TB among the presumptive DR TB cases (retreatment, Cat I and II failures, late converters) is 8.9%. **Figures 4 and 5** show the GeneXpert test results.

### 6.1.1 Strengthening Programmatic Management of DR TB (PMDT)

#### ■ Capacity Building on Management of MDR TB

In FY14, the project expanded community based management of MDR-TB to 20 districts and consolidated the program in the existing 19 districts to continue increasing access to treatment. During this period, the project trained 890 field level health professionals of the Outpatient DR TB teams on clinical and programmatic management of MDR-TB patients. In addition, the project organized refresher training for 1,026 participants of Outpatient DR TB team. The project also organized orientation for 104 DOT providers from Dhaka City Corporations. The training aims at developing programmatic and clinical capacity of the team members to be able to provide on-going treatment and side effects management support to the MDR TB patients.

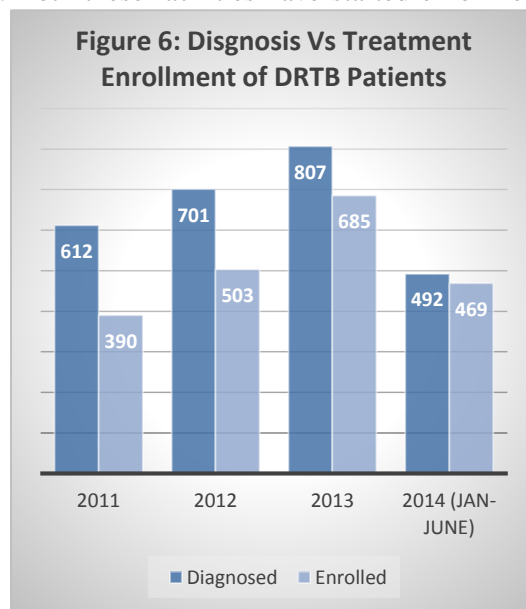
The project also conducted training of 10 staff including doctors, nurses and other support staff from CDH Barisal to develop their skills in clinical and programmatic management of DR TB.

### ■ Enrollment of Patients on DR TB treatment

Over the last two years, the project support has enabled NTP to double the bed capacity for MDR-TB treatment. During this year, TB CARE II support renovations leading to a new MDR-TB ward with 32 beds at the Sylhet CDH as well as 10 beds at Barishal CDH. Both these facilities have started enrollment of patients for treatment.

The expansion of hospital capacity for inpatient management of DR TB patients and transfer of patients from hospital to cPMDT usually within two months have significantly enhanced the national capacity for treatment enrollment. With the expansion of cPMDT, more patients are getting transferred to community based treatment making more beds available for initiating treatment to new patients.

As is evident in the **Figure 6**, the gap between diagnosis and treatment initiation is closing despite increasing detection of MDR-TB patients year by year. In 2011, 64% of the diagnosed patients were enrolled in to treatment. Based on the first 6 months of 2014 data, 469 out of 492 diagnosed patients (95%) were enrolled in to treatment. The project supported interventions have successfully reduced both the number of patients on waiting list of treatment as well as delay in treatment initiation as described in the next section. During the first 6 months of 2014, the project facilitated transfer of 234 patients to continuation phase treatment at the community level. The number of patients transferred to cPMDT between October 2013 and September 2014 is 474.

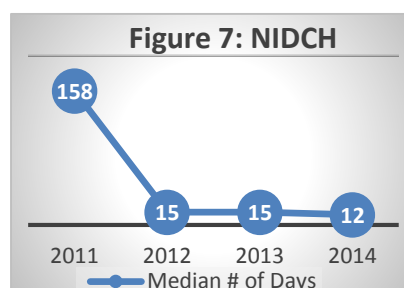
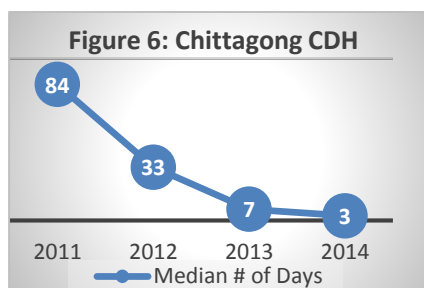
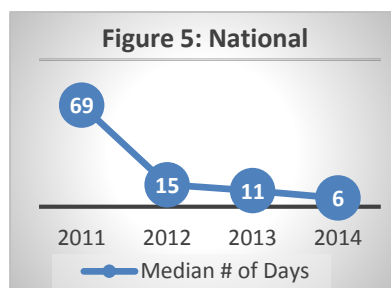


### ■ Reducing Treatment Delay

The introduction of community-based management of MDR-TB patients in early 2012 has made a significant impact in reducing delay in treatment initiation which is critical for infection control, better management of the disease and improved treatment outcome. The project plays a key role in coordinating with different MDR-TB hospitals for early treatment initiation for diagnosed patients as well as timely release of the patients to continuation phase treatment at the community.

Improvements in coordination and the efficient management of treatment initiation and release to community based treatment has resulted in a significant reduction in treatment delay which was previously a major concern, prior to introduction of cPMDT. The graphs below show the median number of days lapsed

between diagnosis and treatment initiation. The analysis of data only includes patient on cPMDT, not the patients currently on treatment at the hospitals.



At the national level for all patients on cPMDT, the median number of days between diagnosis and treatment initiation has come down from 69 days in 2011 to 6 days in 2014. For patients registered under Chittagong CDH and NIDCH, which are the two largest provider of MDR-TB services, treatment initiation delay came down from 84 to only 3 days, and from 158 days to 12 days respectively. As is evident in these graphs, treatment initiation delay sharply reduced in 2012 when the cPMDT model was introduced by the project. The number of patients on waiting list for treatment initiation has also rapidly declined due to increased availability of beds at hospitals.

#### ■ Monitoring and Coordination of MDR-TB Activities

The project routinely organizes performance review meetings at the district level with the DR-TB DOT providers to improve coordination of cPMDT activities and provision of DOT services for the DR TB patients. During this period, the project staff facilitated review meetings in Dhaka, Narshingdi, Comilla, Chittagong, Narayanganj and Gazipur districts. These meetings were organized to identify implementation issues including coordination of cPMDT activities, availability and supply of drugs, patient compliance with treatment, patient support, side effects management, generation of social support for the patients, and roles and responsibilities of the DOT providers and project staff in resolving these issues.



Performance review meeting on cPMDT

#### ■ Recording and Reporting of MDR TB patients

The project supports a MIS Assistant at NIDCH and developed a computer-based system for recording, tracking, and reporting of MDR TB patients. During the project period, the MIS Assistant recorded and periodically updated in-patient and ambulatory care status of all the MDR TB patients including patients under cPMDT.

### 6.1.4 Increased Knowledge and Behaviour on TB and MDR-TB

#### ■ Mass Media Campaign 1<sup>st</sup> Phase

The project supported a 6-month long communication campaign through TV and Radio channels to improve mass knowledge and awareness about child TB and MDR TB.

## ■ Media Survey

At the end of this campaign in March 2014, the project supported a national media survey to assess the level of knowledge and awareness as well as to establish the baselines levels for future reference. Major survey findings are cited below:

- Around 86.9% male and 80.8% female interviewed responded that they had knowledge about TB.
- 90.4% of respondents from urban area and 81.0% of respondents of rural area have knowledge about TB.
- TV and family, friends, neighbours, and co-workers were the main sources of information to learn about TB.
- About 85% of the respondents identified cough for 3 weeks or more is the symptom for TB.
- More than 60% of the respondents that watched or listened to the TVC on MDR TB don't know about the reasons that can cause a person to develop multidrug resistant tuberculosis.
- The respondents who had seen these advertisement, were able to catch the two messages of the advertisement: "A child has increased risk of TB if there is a TB patient in the family" and "If there is a TB patient in the family, every child less than 5 years should be taken to a health center for TB checkup".
- Overall knowledge about reasons for MDRTB and child TB is very low.

## ■ Mass Media Campaign 2nd Phase

The project selected a local media agency for implementing a second communication campaign through electronic media. TV and Radio scripts and bill board messages for this campaign have been finalized and approved by NTP IEC committee. The production of TV and Radio materials is in progress; the airing through TV and Radio is expected to start in December 2014. The billboards are also expected to be on display by December 2014.

The project developed an entertaining short film targeted to slum people, factory workers and has been planned for airing through Cable TV. This film has also been provided to project's sub grantees for using in ACSM activities.

## ■ TV and Radio Program on TB-DM Co-morbidities

In this period, the project supported DAB to organize TV and Radio programs with focus on TB and DM co-morbidities. The live programs covered discussion on critical issues on TB-DM co-morbidities aimed at sensitizing people about the increased risk of TB for diabetes patients, benefits of early detection, and management of co-morbidities. The viewers also joined the discussion through phone and asked questions for expert opinions.

## ■ Community based Awareness Activities

The project sub-grantees conducted different behavior change communication and social mobilization activities to increase people's knowledge and awareness about TB and promote early care seeking for TB services. Major community based activities supported by the project are summarized below:

- Organized 142 quiz competition to raise knowledge and awareness about TB among school children;
- Conducted orientation on TB awareness for more than 7,000 rubber and tea garden workers and ethnic people both male and female;
- Conducted school health education for 13,830 school children from in and around the tea and rubber gardens in Sylhet division;

- Project supported NGOs conducted orientation for 2450 school students on signs and symptom of TB using different IEC materials
- Oriented 555 cured TB patients as peer educators to help active patients adhere to treatment;
- Conducted 257 video shows, 10 street dramas, and 761 community group meetings among the vulnerable population groups in urban slums and hard-to-reach rural areas to improve knowledge and awareness about TB;
- Conducted more than 30,000 community group meetings
- Orientation of 101 NGO service providers on effective communication and counselling on TB;
- Organized 35 events of folk songs and dramas to disseminate TB messages among the vulnerable population groups in different geographic areas;
- Developed and distributed a generic guideline among the NGO field workers on the appropriate use of different BCC materials on TB;
- Conducted 50 awareness meetings with farmers' group;
- Conducted 75 advocacy meetings in urban and rural areas involving more than 1,200 union council members, slum leaders, imams, and other community leaders;
- Conducted more than 40,000 household visits for educating community members on TB, contact tracing, and identification and referral of TB symptomatic cases among adults and children;
- Installed 45 sign boards with TB messages at Union Parishad premises;



Contact tracing at a household



Community Awareness Meeting

### ■ Promotion of TB Messages through Print Media

The project printed and distributed different communication materials, e.g., posters, stickers, and leaflets with TB messages to raise public awareness about TB. The materials are displayed at the government and NGO health facilities, DOTS centers, and sub-grantee working areas. During this period, the project printed and distributed posters on infection control, MDR TB brochure, child TB posters and flip charts on child TB and stickers with TB messages. The project also developed and printed 10,000 Bangla child TB booklets to assist field health workers in child TB screening, algorithms on TB diagnosis and referral for distribution to health facilities, TB counseling guideline for counselor and flip chart on infection control for health providers.

The project supported DAB to develop leaflets on TB in Bangla for the diabetic patients covering general information on tuberculosis, risk of TB-DM co-morbidity, prevention of tuberculosis, treatment adherence and availability of treatment. The project produced 50,000 copies leaflets for distribution among diabetic patients.

### **6.1.5 Increased Adherence to TB and DR TB Treatment**

#### **■ Counseling Training**

The project conducted counseling training for 45 nurses working at CDH, Chittagong to develop their skills for counseling and supporting MDR TB patients. The training is designed to help the service providers understand the concept of counselling, improve their communication skills, recognize the key areas to cover, understand the importance of psycho-social support, and routinely deliver key messages to the patients for improving treatment adherence and side effects management.

#### **■ Counseling of DR TB Patients**

The DR TB patients are counseled at the time of admission, during inpatient treatment at the hospital and continuation phase of treatment at the community. The project has been supporting a Counselor at the NIDCH where the largest number of DR TB patients is enrolled for treatment. During this period, all the patients received pre-admission counseling informing the patients about treatment duration, intensive and continuation phase treatment, how the patient will receive treatment services at home, and infection prevention practices. The counselor also organized 454 individual sessions to counsel and provide psychological and emotional support to help patients manage the side effects, overcome depression and stress due to prolonged and complicated treatment, and be able to adhere to the treatment.

The DR-TB DOT providers counsel the patients on continuation phase on a daily basis. During this period, all the patients have been counseled by the DOT provider. This counseling is tailored to individual patient needs with emphasis on helping the patients to adhere to the treatment regimen, manage the side effects and complete the treatment successfully.

#### **■ TB Counseling for DM Patients**

DAB provides regular counseling of DM patients to sensitize them about increased risks of TB infection and prevention and early care seeking for TB services. In this period, DAB staff organized 278 sessions and counseled 26,136 DM patients.

#### **■ Vocational training for MDR-TB patients**

The project continued to support a Vocational Trainer at the NIDCH for providing training on cutting and sewing dresses. The training is intended to help the patients manage depression and stress and complete the treatment, and develop vocational skills that they would be able to use for income generation. A total of 122 DR TB patients, mostly female, participated in this training. The trainer also helped patients make protective masks which are used by the patients themselves.

### **6.1.6 Strengthened Health Systems and Governance**

#### **■ Integrated Delivery of TB and MCH Services**

The project has been supporting the NGO grants partners to promote integrated delivery of TB services through the existing maternal and child health programs in the public sector by developing capacity of the community level MCH workers in TB screening and referral. During this year, the project sub-grantees have oriented 2,023 MCH workers and 68 Community Health Care Providers (CHCPs) on TB screening in different districts.

Engaging with the district and upazila level doctors who provide both specialized and a range of curative care services through outdoor hospital facilities, is important for integrated delivery of TB services. The project sub-grantee RDRS, held an orientation session participated by 25 public doctors working in Kurigram district to improve their programmatic management of TB and how they can integrate TB screening through the general health care services they provide. UHFPOs from all the upazilas of the district, Medical officer, consultant, and senior physicians were present in the orientation session which was held under the chair of the district Civil Surgeon.

### ■ Capacity Development on Child TB

The project through its partnership with the Bangladesh

Pediatric Association supported training of pediatricians, doctors, general physicians and health care workers from the upazila level to develop their clinical and programmatic management skills in screening, diagnosis and management of child TB cases. Through this partnership, the project supported TOT and



**Orientation of MCH Workers**



**Local Level Planning for Child TB**

developed 38 medical professionals as trainer-of- trainers for doctors on child TB. During the reporting period, 1,168 doctors including UHFPOs, Medical Officer (Disease Control), pediatricians and general physicians from different upazilas and physicians from public and private medical colleges of Dhaka division have been trained. As part of this training, participants were also required to develop local level plans with targets for detection of child TB cases in their respective areas. The project also supported the trained doctors to orient a total of 8,345 health workers from their respective upazilas on community level active case finding

approaches, e.g., contact tracing, and screening and referral of presumptive child TB cases. The project is

conducting an evaluation of the child TB training to assess the improvement in clinical practices and other short-term impact of this training in increasing child TB detection. A protocol and questionnaire have been developed for this evaluation and the field work for data collection is in progress. The results of this evaluation will be used to guide decision for expanding the child TB training in other areas. Apart from training, the project also supported orientation and networking meeting with pediatric faculties of nine medical college hospitals. Through this process, a total of 367 physicians including pediatricians were oriented on the national guidelines for management of child TB.

### ■ Child TB Teaching Video

The project developed a teaching video on child TB with an aim to enhance capacity on child TB patient examination, procedure of Mantoux test and Gastric lavage. Renowned pediatricians played role in these shootings. The videos were used in different training session of BPA for physicians.

### ■ Building Capacity on X-Ray Reading and Interpretation

The project organized training to develop master trainers on Radiological Interpretation of Evidences of TB in Children. This training is part of the project's overall strategy to strengthen NTP's capacity for improving diagnosis and management of child TB in Bangladesh. A total of 52 participants including radiologists, paediatricians and clinicians from both Government and NGO sectors attended the training. Internationally renowned child TB expert Professor Robert Gie from Stellenbosch University of South Africa helped develop the training material and facilitated the first two batches of the training of master trainers. The training has been designed to help the participants understand the challenges in reading CXR in a child suspected of having TB. It introduced the concepts of pathological overlap, the importance of pre-test likelihood, inaccuracy of the CXR and the difficulty of learning the normal anatomy of the chest. Case studies and interactive CXR readings were built in to the training to reinforce learning of the standard ways to read and interpret the CXR by the participants.



Training on X-Ray

### ■ TB Handbook for Medical Students

The project in partnership with the Center for Medical Education (CME), WHO, NTP and RTM International developed a Handbook on TB for MBBS students which will be used as a course material for teaching students of the undergraduate medical program. During this period, the project printed and with the support of CME, distributed 5,890 handbooks on TB to 71 public and private medical colleges for distributing among fifth year MBBS students, to medical college library and academic departments.

### ■ Exposure to best practices and innovations

The project supported NATAB and The Union to jointly organize the 2nd SEAR Conference on TB and Lung Health in Dhaka from 9-12 March, 2014. The project supported NTP and sub-grantee staff to participate in the conference to expose them to the best practices and innovative models used for improving TB and MDR TB management. In addition, the project also supported participants from NTP and NTRL to attend 44<sup>th</sup> Union Conference on Lung Health and TB held in Paris.

### ■ Scale up e-TB Manager for electronic registration of TB Data

The project supported WHO to develop capacity of government staff in operating e-TB Manager which is being scaled up by MSH. WHO provided technical support to organizing 15-day basic computer training. During this year, 134 staff of GOB and NGOs have received this training. Following this basic computer training, MSH Bangladesh organizes the training on e-TB manager software.

### ■ Participation in Joint Monitoring Mission

The NTP on behalf of MOHFW organizes regular independent reviews of the TB control program. NTP with the support of WHO has conducted the sixth Joint Monitoring Mission from March 30 April 10, 2014, to formulate strategic and programmatic recommendations for developing the “concept notes” under New Funding Model. The Project Director including local staff of the project participated as reviewers and contributed to the exercise.

### 6.1.7 Increased Private Sector Participation in TB Prevention and Control

#### ■ Public Private Mix (PPM) through project sub-grantees

The project has been supporting PPM activities through the grants program to engage formal and informal private sector service providers in TB control program. In order for enhancing functional linkage and to increase suspect referral, the NGOs conducted orientation of graduate and non-graduate private providers on screening and referral of presumptive TB cases. The project also supported partners to conduct networking meetings with these providers to foster effective participation of these providers in identification and referral of presumptive TB cases for diagnosis and management.

During this period, the project-supported NGOs oriented 3,768 graduate doctors and 7,764 non-graduate doctors. Networking meetings were conducted with 3,375 graduate and 5,294 non-graduate private providers. The PPM effort contributed to identification and referral of 41,581 presumptive TB cases to the DOTS centers for diagnosis and management during the reporting period. The progress in PPM activities by NGOs is presented in the **Table 6** below.

**Table 6: Orientation and Referrals through PPM**

Oct'13- Sep'14			
Sub-Grantee	Orientation/ Networking with Graduate PPs	Orientation/ Networking with Non-graduate PPs	Presumptive TB case referrals by PPs
BRAC	3,375	5,294	37,108
FIDA	20	0	312
BCCP	92	46	920
Lepra	60	1,851	1,587
Leprosy Mission	10	240	1,344
Nari Maitree	65	150	206
PIME Sisters	96	158	87
RDRS	25	25	16
KMSS	25	0	1
<b>Total</b>	<b>3,768</b>	<b>7,764</b>	<b>41,581</b>

### 6.1.8 Strengthened Support Systems for effective delivery of TB services

#### 4.6.1 Laboratory Services and Systems strengthened

#### ■ Integrated Lab Service Database for NTRL

With the expansion and increasing load of diagnostic and follow up services, the management of laboratory service data became a challenge for NTRL. There was no structured data storage and management system at this lab. Data generated at NTRL are stored in several separate excel files making analysis and reporting of laboratory data extremely difficult. The system was incapable of preventing duplication of diagnostic tests, and tracking and ensuring follow up tests of MDR TB patients in a timely manner. In order to address these challenges, the TB CARE II project supported an international expert to develop an integrated laboratory data management system using Epidata software following international standard for efficient

management of laboratory services data. The database has been installed and is now operational. The project also supported hands-on training of 9 Microbiologists and Lab Staff to develop their skills in data entry, management, and developing customized and need-based reports.

#### ■ **HR and Logistics Support to NTP**

The project has continued its assistance to NTRL Dhaka and RTRL Chittagong with equipment, e.g., AVR for auto generator and autoclave, reagents and consumables, minor renovations and technical support that were necessary for smooth functioning of the lab as well as for expanding and ensuring quality of diagnostic services. The project continued to support 2 Microbiologists based at the NTRL and RTRL Chittagong to enhance its capacity to provide lab services including DST and culture services. Besides, the project has been supporting 1 Medical Officer, 1 Counselor, 1 MIS Assistant and 1 Vocational Trainer at NIDCH to improve management of MDR-TB patients.

#### ■ **Improve staff capacity on GeneXpert, Culture and DST**

During this period, the project assisted NTP to organize GeneXpert training for 61 lab staff. The training was intended to develop participants' skills in the new diagnostic tool and use of the national guidelines for routine screening of MDR TB suspects and smear negative cases. Orientations on GeneXpert and national guidelines for routine screening of MDR TB presumptive cases were conducted in 7 districts for a total of 520 participants including district and upazila health managers, chest disease consultants, medical officers, lab staff, nurses and NGO staff. The project also supported NTP to organize training on culture and DST for 7 lab staff including microbiologists from RTRLs. The project organized training for 27 Microbiologists, Medical technologist (Lab), designated Laboratory Technicians on "Biological Safety cabinets, Laboratory Equipment Maintenance & Calibration" at NTRL.

The project organized a workshop to review Xpert lab data to monitor quality and performance of DR TB diagnostics and monitoring services. An SOP was developed for culture and DST for diagnosis of TB/MDR TB and organized workshop to finalize SOP. The project supported NTP to organize EQA workshops to review the EQA procedures, findings and recommended actions for improvement. Advocacy Workshops were conducted in four divisional headquarters with physicians to increase referral of DR TB suspects for Xpert testing.

#### ■ **Installation and Operation of LED Microscopes**

During this period, the project conducted two-week training course for 134 lab technologists on sputum microscopy using LED fluorescence microscope. Procurement of 100 LED microscopes planned for FY 2014 has been completed. These microscopes in addition to 200 already installed in the previous year will enable NTP to make a system wide improvement in quality and capacity for smear microscopy for increased and more reliable diagnosis of TB. The 100 LED microscopy sites have been selected in discussion with NTP and renovation process for these sites is going on. During this period, the project also printed out 2,000 copies of LED microscopy laboratory manual.

#### ■ **Sputum collection and transportation**

The project has further expanded the sputum collection and transportation system linking GeneXpert sites with the peripheral labs at the upazilas and districts for the purpose of increasing access to Xpert tests. During this period, the project conducted training for 194 GO and NGO staff on sputum collection and transportation system. The collected samples are transported to GeneXpert sites for testing and to NTRL/RTRL for culture and DST for follow up testing of MDR TB patients. The system is now operational in 35 cPMDT districts and that has eliminated the need for the patients to come to the facilities for providing sputum samples for GeneXpert, DST and culture tests.

## ■ **Completion of Khulna RTRL**

Commissioning of the Khulna RTRL was one of the priorities of the project. During this period, the project completed renovation works and also completed the procurement of reagents, consumables and glassware required for Khulna RTRL. Equipment procured with project support have been transported to the lab site, installation of power supply to the lab has started. The RTRL is scheduled to go in to operation early next quarter.

## ■ **Capacity development on IC and Waste Management**

Training on TB Infection Control is now integrated with other regular training programs on TB. With the project support, a booklet in Bangla on TB IC has been finalized. During this period, the project organized TB IC orientation for 949 health professionals including doctors, nurses, health assistants, lab technicians and other staff associated with TB services. The project also conducted orientation for 1,062 hospital staff to update them on the essential waste management procedures and requirements.

## ■ **Monitoring cPMDT activities**

The project has set up an intensive monitoring and supervision system for effective implementation of cPMDT activities. The Outpatient DR TB Team members regularly monitor and supervise the DR TB DOT providers. In addition, project field staffs made monthly visit to patient's home to monitor treatment compliance, assess patient management needs and take follow up actions in discussion with the Outpatient MDR TB Team.

During this period, project staff visited all patients under cPMDT. Joint monitoring team consisting of representatives from NTP, WHO and the project also visited the field to monitor the performance of the Outpatient Team, DR TB DOT providers and patients' compliance with treatment.

## ■ **Improved Recording and Reporting**

During this period, the project has assisted NTP to update the recording and reporting forms as recommended by WHO and incorporated in to the revised national TB guidelines. Now the project is assisting NTP to develop capacity of staff for routine use of these revised forms at the field level. To support this initiative, the project organized training and orientation for 231 Program Officers and TLCAs on the use of updated recording and reporting forms.

## ■ **mHealth for monitoring DOT providers**

Currently, mHealth is operational in 33 districts. During the reporting period, out of 644 active DR-TB patients on cPMDT, 527 patients were covered through the mHealth program. The application is now used by 391 DR-TB DOT providers. The application is designed to ensure that the DOT providers make daily visit to patients' home, administer drugs, checks for side effects, and records patients' response to treatment. During this period, orientations and refresher orientation on mHealth were conducted for 1,137 participants including 212 DOT providers who received basic orientation.

The project recently started a new Telemedicine initiated named mDRDoc to enable MDR-TB patients receiving treatment at home to have direct access to chest disease specialists for video consultation. The project oriented 10 DR TB DOT providers on Telemedicine (mDRDoc) in Dhaka and Chittagong City Corporations.

## ■ **Monitoring and supervision of sub grantees**

During this period, the project staff conducted Data Quality Assessment (DQA) for sub grantees HEED and PIME Sisters. During this visit, data from the reporting units, DOTS corner and microscopy lab reports were verified. The project staff also visited NIDCH, Gazipur DOT center to assess the MDR TB data quality and

reporting mechanism. In addition, several monitoring and supervisory visits have been conducted to sub grantees and provided technical assistance to the sub grantees for implementing the project activities.

## 7 CHALLENGES ENCOUNTERED

Utilization of GeneXpert especially at the district level facilities is still not at the satisfactory level. The project is yet facing challenges to ensure that all MDR-TB and eligible smear negative presumptive cases have been referred for GeneXpert testing. To address this issue, the project has started conducting advocacy meetings with physicians from the districts and upazilas to increase referral as well as to update the referring physicians on the national policy and algorithm for GeneXpert test.

Increasing detection of child TB is a formidable challenge and requires a nationwide shift in strategies and programmatic interventions with focus on active case finding at the community and facility level, developing capacity of service providers in detection and management, and community awareness about child TB. The project has been trying to increase detection of child TB in a limited number of geographic areas through NGO grants program. Aside training of the service providers, strong emphasis is needed to expand the contact tracing and monitoring and supervision over an extended period of time to see any tangle change in case detection.

Although the number of MDR-TB hospital beds has increased in the last two years, this is still not adequate to meet the demand for MDR TB services with the gradual increase in case detection. To address this situation, the project staff is engaged in continuous dialog with NTP to initiate ‘zero day’ treatment for all diagnosed patients unless the clinical assessment indicate the need for hospitalization.

Tracking of prison inmates remain a challenge due to sudden transfer of inmates from one prison to another or release of patients. Systematic screening of prison inmates is also not possible due to security issues. The project has continually updated NTP and sought its support to improve the situation.

The political unrest in the country severely interrupted and delayed the implementation of a number of activities in the first quarter of FY14. Some activities needed to be postponed and rescheduled due to unpredictable nationwide strike that made it impossible for staff and government counterparts to participate or organize the planned event and conduct monitoring visits.

## 8 PERFORMANCE MONITORING PLAN

The TB CARE II project is designed to strengthen and improve performance of National TB Control Program. Except for some project specific indicators, the project has adopted the NTP service delivery indicators for reporting its performance. Therefore, the project exclusively relies on NTP Management Information System (MIS) for collection and reporting of TB case detection, treatment outcomes, and laboratory performance data. At this time, the NTP MIS has completed compilation of data for the April-June quarter of 2014. The project used this data for analysis and reporting the performance as presented in Table 7.

*Table 7: Indicators reported using NTP Management Information System*

Outcome Indicators	Baseline 2010	Target CY 2014	Result CY 2014 (up to Qtr. 2)	CY 2014 Qtr 1	CY 2014 Qtr 2	CY 2014 Qtr 3	CY 2014 Qtr 4
Notification Rate of all forms of TB cases	100	115	Reported Annually	Reported Annually	Reported Annually		
Number of all forms of new TB cases notified	155,138	176,663	93,570	45,525	48,045		
Notification Rate of new smear-positive (SS+) TB cases	70.5	74	Reported Annually	65.6	68.4		

Number of smear Positive (SS+) patients notified	105,772	115,999	52,516	25,705	26,811		
Number of smear negative (SS-) patients notified	21,625	29,119	21,931	10,787	11,144		
Number of extra pulmonary patients notified	23,506	31,545	19,123	9,033	10,090		
Number of child TB patients notified	4,235	6,656	3,067	1,416	1,651		
Number of children under 5 registered for IPT	0	0	#VALUE!	Not available	Not available		
Number of new multi-drug resistant-TB (MDRTB) patients diagnosed and initiated to treatment	183	1,400	469	220	249		
Cure Rate of notified SS+ TB cases	90.80%	>90%	Reported Annually	92.5%	94%		
Treatment Success Rate of notified SS+ TB cases (disaggregated by sex)	92.30%	>90%	Reported Annually	93.4%	94%		
Treatment Success Rate for MDR-TB cases	65%	>75%	Reported Annually	75.4%	70%		
Percent of labs participating in EQA for smears	100%	100%	Reported Annually	100%	100%		
Percentage of concordant slides under EQA system (high false positive, high false negative, scanty false positive, scanty false negative)	99%	>95%	Reported Annually	98.6%	97.95%		
Percent of labs performing TB microscopy with over 95% correct microscopy results	100%	>95%	Reported Annually	94.4%	95%		
Smear Conversion Rate of new smear positive TB cases.	87.1%	>86%	Reported Annually	86.2%	85.6%		

The TBCARE II project also maintains Project Management Information System (PMIS) for monitoring and reporting on project specific data that is not generated by NTP. The PMIS specifically tracks outputs of US government investments in capacity building and NGO contributions to TB suspect identification and referrals as shown in the Table 8 below:

**Table 8: Indicator reported using TB CAERE II Project Management Information System**

	Indicators	Target FY 2014	FY 2014 Qtr 1	FY 2014 Qtr 2	FY 2014 Qtr 3	FY 2014 Qtr 4
1	Number of people trained in DOTS with USG funding	9,235	3,831	3,891	5,482	2,035
2	Number of service providers trained on management of child TB with USG funding	16,765	87	1,072	8,640	161
3	Number of people trained in MDR-TB (clinical care, MDRTB DOTS, ambulatory care) with USG funding	1,800	197	404	1,060	313
4	Number of private providers participating in TB program through referrals, diagnosis, treatment, and follow up	30,000	3,634	3,497	12,959	3,911
5	Number of TB suspects referred by health care provider (e.g., health assistant, shasthya shebika, private practitioners, others) with USG funding	65,000	13,204	14,790	13,104	5,668

<b>6</b>	Number of lab technologists trained on AFB, LED and other new diagnostic technology with USG funding	300	33	41	82	73
<b>7</b>	Number of service providers trained on Infection Control with USG support	2,500	67	404	1,059	83
<b>8</b>	Number of people trained in other strategic information management with USG funding	500	137	258	326	402
<b>9</b>	Number of children under 5 registered for IPT with USG funding	3,000	85	72	164	0
<b>10</b>	Number of DR TB suspects tested by GeneXpert	0	1,425	1,805	2,010	3,029
<b>11</b>	Number of smear negatives sputum samples tested GeneXpert	0	2,447	6,827	7,546	7,823
<b>12</b>	Number of HIV patients tested for TB by GeneXpert	0	69	70	85	41
<b>13</b>	Number of MTB positive identified by GeneXpert	0	1,311	1,945	2,460	3,311
<b>14</b>	Number of MTB RIF identified by GeneXpert	0	196	229	263	281